Variety Seeking Behavior: An Interdisciplinary Review

LEIGH McALISTER
EDGAR PESSEMIER*

A taxonomy of varied behavior is offered to structure research findings pertaining to the various phenomena termed "variety seeking." The literature is reviewed within that framework. Seemingly disparate research traditions, one viewing the phenomenon as inexplicable, the other attempting explanation, are shown to be converging. A model encompassing current research is proposed and its parameters scrutinized.

Variety, the proverbial spice of life, is a much discussed and much researched topic. Its antecedents, determinants, implications, and correlates have been investigated by psychologists, consumer behaviorists, marketers, and economists. The resulting accumulation of information exhibits apparent contradictions and inconsistencies. It is our contention that these discrepancies arise because the term "variety" is used to denote a number of different phenomena. In this paper, we avoid the term altogether as we sort through the literature that has accumulated under its banner. Toward that end, we offer a taxonomy of causes of varied behavior and review the literature within that framework.

The phenomena of interest in this paper are those mechanisms which lead individuals to engage in varied behaviors. We include switching among product variants,[1] switching among service alternatives, switching among various activities, and so forth under the umbrella of "varied behaviors." A taxonomy of explanations for such varied behavior is presented in Figure A.[2]

The taxonomy suggests that there are two basic schools of thought concerning varied behavior. One school considers such behavior to be either inherently inexplicable or, if explicable, to be so complex as to render it operationally inexplicable. This school focuses on the probabilities with which different behaviors will be enacted.

The other school of thought tackles the chore of explanation. Explanations can be divided into two classes: those which view varied behavior as the result of some other motivation *(derived)*, and those which view variation as a motivation in and of itself *(direct)*. Motivations from which varied behavior might derive are suggested. It is also suggested that direct varied behavior might result from internal *(intrapersonal)* or external *(interpersonal)* causes.

We propose that all these phenomena can cause varied behavior. Furthermore, any given choice that differs from its predecessor may be the result of a number of these causes acting in concert. We are attempting not to invalidate any stream of research, but to interrelate the evidence in the marketing, consumer behavior, economics, and psychology literature with respect to varied behavior. Our objective is to crystalize a few common concepts, identify their antecedents, and explore their implications.

"INEXPLICABLE VARIED BEHAVIOR" AND STOCHASTIC MODELS

Our dichotomization of the literature into schools that consider varied behavior *inexplicable* and *explicable* perhaps overstates their differences. Those who thought varied behavior too complex for explanation proposed probabilistic models of choice. The evolution of the probabilistic models has involved the incorporation of variables to explain the probabilities. Thus, little by little, the two traditions are converging.

A major contribution to the tradition of probabilistic prediction of behavior was Luce's (1959) axiom of choice. His axiom implies a correspondence between a set of numbers (measures of affect) and a set of choice objects such that the probability that an object will be chosen is given by the ratio of the number corresponding to that object and the

*Leigh McAlister is Assistant Professor of Management Science, Alfred P. Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA 02139. Edgar Pessemier is Professor of Business Administration, the Darden Graduate School, University of Virginia, P.O. Box 6550, Charlottesville, VA 22906. Support received from the University of Washington School of Business Summer Research Fund and from the Marketing Science Institute is gratefully acknowledged.

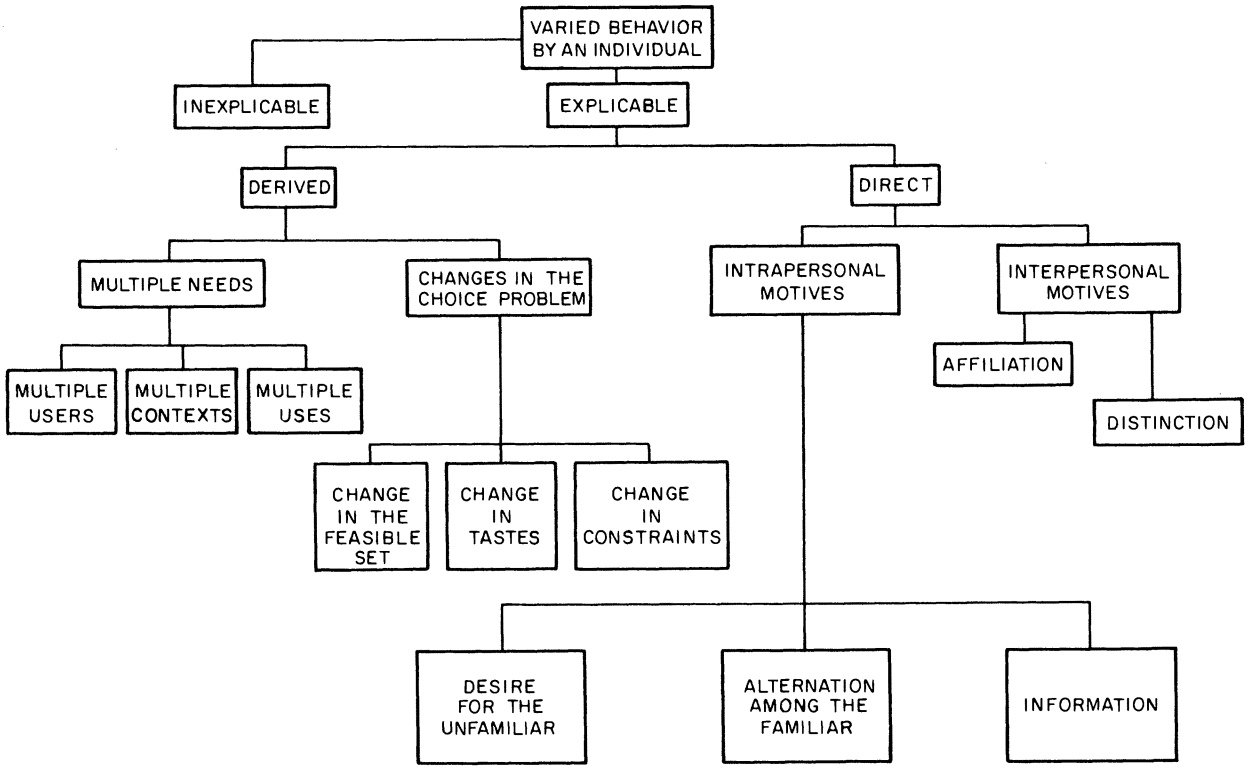
[1]Following Laurent (1978, p. 1): "Two units of a product are different *variants* of the product if they bear different brand names or if, while sold under the same brand name, they represent different varieties or forms of the product. For example, Breck and Prell are different variants of shampoo; Taster's Choice Caffeinated and Taster's Choice Decaffeinated, while sold under the same brand, are different variants of coffee."

[2]This taxonomy is an outgrowth of one formulated by Laurent (1978).

© JOURNAL OF CONSUMER RESEARCH • Vol. 9 • December 1982

FIGURE A

A TAXONOMY OF VARIED BEHAVIOR



sum of the numbers corresponding to all of the available alternatives.[3] These probabilities are often interpreted as long-run frequencies of choice.

In the 1960's, proposed models focused on different potential determinants of these "probabilities of choice." Massy, Montgomery, and Morrison (1970) classified the models as dealing with (1) feedback from past experience with the choice object, (2) the influence of exogenous market forces, or (3) the impact of factors indigenous to the household itself. The first determinant was modeled as the learning brought about through experience (Keuhn 1962). The second determinant was modeled as a time trend. The third was captured by assuming a distribution across the population of the parameters influencing the probability of choice. (Generally these parameters indicated differences in tastes.)

One stream of subsequent developments in this tradition has switched the focus to the managerial implications of macro models. Bass and his coauthors (e.g., Bass 1974; Bass, Jeuland, and Wright 1980; Bass and Pilon 1979) favor this approach because "the randomness which characterizes individual behavior tends to be washed out by aggregation" (Bass 1974, p. 9).

Huber and Reibstein (1978) hypothesized that an individual's choice behavior is explicable and predictable given knowledge of the individual's ideal points for attributes characterizing the product class. However, since they posit that those ideal points are subject to random fluctuations, the final implication is that behavior is not predictable.

Blin and Dodson (1980) cross-fertilize multiattribute attitude and stochastic models. They argue that "the consumer's attitude structure governs not actual choice on any single purchase occasion but relative *frequency* of choice over repeated purchase occasions" (Blin and Dodson 1980, p. 611). The cross-fertilization they propose involves estimating the frequency with which a behavior will be performed as a function of the importance weights in an individual's linear compensatory preference function. The data are scaled so that the importance weights are all positive and the weights sum to one. They estimate the frequency with which a particular behavior will be performed[4]

[3]Such a correspondence between measures of affect and probability of choice has often appeared as an ad hoc assumption in the psychology literature. For example, Thurstone (1930) and Gullikson (1953) proposed this correspondence in learning theories in which the "measure of affect" was interpreted as "response strength." Statisticians have also concerned themselves with such a model. Bradley and Terry (1952) present maximum likelihood estimates for quantities analogous to Luce's measures of affect.

[4]This frequency is conditioned on there being no uncertainty in the choice situation. Blin and Dodson (1980, p. 611) cite two potential sources of uncertainty: "(1) internal uncertainty about which attributes are relevant to his choices, what weight they should be given, and how each choice alternative performs on each attribute scale; and (2) external uncertainty due to environmental influences such as availability, dealing, etc."

to equal the sum of the importance weights for those attributes on which that behavior's value is the best available. One implication of this model is that those behaviors that do not dominate on at least one attribute will never be performed.[5]

This link between stochastic models and attitude structure is an important one. It stops short, however, of explaining "why" and predicting "when" an individual will elect to switch behaviors. Givon (1981) proposes a stochastic model to directly address the question of "why." The sequence of behaviors an individual performs, he maintains, is the result of two forces: (1) the utility derived from the behavior itself, and (2) the utility inherent in switching, regardless of the behavior to which or from which one switches.

The above stochastic models do not address the question of "when" an individual will elect to switch behaviors. Yet the incorporation of psychological constructs into the estimation of choice frequencies may foreshadow the emergence of a third research tradition incorporating the strengths of each of the existing traditions.

"EXPLICABLE VARIED BEHAVIOR" AND DETERMINISTIC MODELS

Derived Variation

Models explicitly explaining varied behavior can be divided into *derived* or *direct* variations. "Derived varied behavior" refers to behavior resulting from external or internal forces that have nothing to do with a preference for change in and of itself. We postulate two such forces: multiple needs, and changes in the choice problem.

Multiple Needs. Laurent (1978) developed and validated operational measures of the construct of varied behavior due to multiple needs. In that research, he decomposed multiple needs into three subcategories: multiple users, multiple uses, and multiple situations.

Multiple users refers to those cases in which different members of a household prefer different objects. This heterogeneity of preferences within the household leads to the selection of multiple objects even if each member uses only a single object.

Multiple situations refers to those cases in which the behavior is dictated by the situation. When the situation changes, the behavior changes:

> Situations may differ in many ways: the social context of consumption, the location of consumption, time constraints on consumption, the quantity consumed, usage convenience (e.g., individual packages of cereal when humidity is high), variables dependent on emotional reactions, concurrent activities (Laurent 1978, p. 3).

Srivastava, Shocker, and Day (1978) and Belk (1979) have extended an approach proposed by Stefflre (1979) to develop a taxonomy of usage situations. Holbrook (1981) has developed a model incorporating situation-specific ideal points.

Multiple uses refers to those situations in which an object is used in multiple ways. Examples include the purchase of one type of soup principally as an ingredient for a casserole and purchase of another type principally for its use as a course of a meal. One might also purchase one type of baking soda as a cooking ingredient and a different type as a cleaning agent. Multiple uses might logically be viewed as a special case of multiple situations. It is mentioned separately here to maintain consistency with Laurent (1978).

Changes in the Choice Problem. Varied behavior resulting from changes in the choice problem can be ascribed to changes in the set of feasible alternatives, changes in tastes, or changes in the constraints facing the individual enacting the behavior.

The *feasible set* might change for many reasons. New products are being launched continually and old ones discontinued. A change in the marketing mix (product, price, promotion, or distribution) can be conceptualized as the addition of a new alternative to the set and the deletion of an old one. Moving from one neighborhood, region, or country to another could change one's set of feasible choice alternatives. By changing one's perceptions of the variants, the reduction of uncertainty inherent in learning also changes the feasible set.

It is obvious that a change in behavior might result from a *change in tastes*. Tastes could be changed by external influences such as advertising, or by internal influences such as maturation.

Finally, a *change in the constraints* governing choice might lead to the selection of a different behavior. For example, a sudden increase (or decrease) in wealth, free time, or energy would probably affect the selections one would make.

Economists have dealt thoroughly with the issue of changes in behavior as a result of changes in the choice problem. Two notable economists (Stigler and Becker 1977, p. 89) claim that "*all* changes in behavior are explained by changes in prices and incomes." While many economists would also allow differences in tastes across individuals and across time, economic research typically focuses on the impact of prices and incomes. The parsimony of such a paradigm is both a strength and a weakness. It provides valuable insights into aggregate behavior (Horsky and Sen 1982). Nonetheless, such models often poorly explain and predict a particular individual's choice in a particular situation. Important work is being done to shed light on the internal process by which changes in the choice problem lead to changes in behavior (see Bettman 1979 for an overview of one such stream of research).

[5]Similar conclusions have been drawn by Muller (1979) and Hauser and Simmie (1981) under the assumption that individuals consume multiple variants in order to achieve a combination of attributes not currently available in any single variant.

Direct Variation

Psychologists (e.g., Berlyne 1960; Driver and Streufert 1964; Fiske and Maddi 1961; and Fromkin 1976) suggest that the motivation for varied behavior may extend beyond multiple needs and changes in the choice problem. "Novelty," "unexpectedness," "change," and "complexity" are pursued because they are inherently satisfying (Maddi 1968). Furthermore, one's behavior patterns are typically influenced by those of one's peers (Fromkin 1976). We believe that the inherently satisfying aspects of changing behavior are caused by forces both internal *(intrapersonal)* and external *(interpersonal)* to the individual. The internal forces are the desires for unfamiliar alternatives, for alternation among familiar alternatives, and for information. The external forces are needs for group affiliation and personal identity.

Intrapersonal Motivation. Consumer behaviorists (e.g., Howard and Sheth 1969; Venkatesan 1973) have linked varied behavior to the existence of an ideal level of stimulation (novelty, complexity, incongruity, change, and so on). Their arguments are based on Driver and Streufert's (1964) synthesis of the theories of consistency (Heider 1946), complexity (Kelly 1955), and optimal arousal (Berlyne 1960). Driver and Streufert's (1964) theory holds that as stimulation falls below the ideal level, cognitive action will produce more input (e.g., exploration, novelty seeking). As stimulation increases beyond the ideal level, cognitive action will attempt to reduce or simplify input.

Zuckerman (1979) brought together the optimal level of stimulation and optimal arousal theories with a parallel neurological theory. He developed his Sensation Seeking Scale (SSS) to measure individual differences in optimal levels of stimulation and arousal. Over the course of 14 years, this scale developed into one with four stable and reliable factors: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (DIS), and Boredom Susceptibility (BS). TAS measures the desire to engage in thrill-seeking, risky, and adventurous activities such as parachute jumping, motorcycle riding, mountain climbing, and so on. ES measures the seeking of arousal through the mind and senses via a nonconforming lifestyle. DIS measures release through drinking, partying, gambling, and sex. BS measures aversion for repetitive experience of any kind, routine work, or dull and boring people.

Raju (1980) used a similar scale to measure consumers' optimum stimulation levels (Mehrabian and Russell's 1974 Arousal Seeking Tendency Scale). Comparing persons with high optimum stimulation levels to those with low optimum stimulation levels revealed differences on three factors: the desire for the unfamiliar, the desire for alternation among familiar alternatives, and the desire for information. It is these three forces which we propose as the basic components of intrapersonal direct motives for varied behavior.

The link between the *desire for the unfamiliar* and the optimal stimulation level is frequently invoked to explain the purchasing of "new products."[6] Work by King (1964), Robertson (1971), and Hirschman (1980) is representative of this theme. Raju (1980) suggests that a favorable attitude toward risk is the primary motivator of innovativeness.

Alternation among familiar alternatives involves very little risk. However, Venkatesan (1973) and Faison (1977) note that the level of stimulation can be raised by switching from one product variant to another, even if the variant to which one switches is familiar. Early brand loyalty studies (Tucker 1964, McConnell 1968) and a similar study in social psychology (Brickman and D'Amato 1975) document this phenomenon. Subjects in these studies made repeated choices from a set of initially unfamiliar stimuli. Two distinct phases of switching behavior were apparent. Initially, subjects systematically explored all stimuli. Later in the experiment, subjects tended to alternate among the elements of their favored subset of the stimuli. Brickman and D'Amato (1975) reason that after their initial search, subjects have weak preferences for some stimuli over others. Additional exposure to more preferred stimuli increases liking of those stimuli. It also creates boredom. The alternation observed in the later part of the experiments is attributed to the balancing of these two effects of repeated exposure.

Several models of alternating behavior have been proposed. As previously mentioned, Givon (1981) suggests that change is rewarding in and of itself, regardless of the object from which or to which one changes.

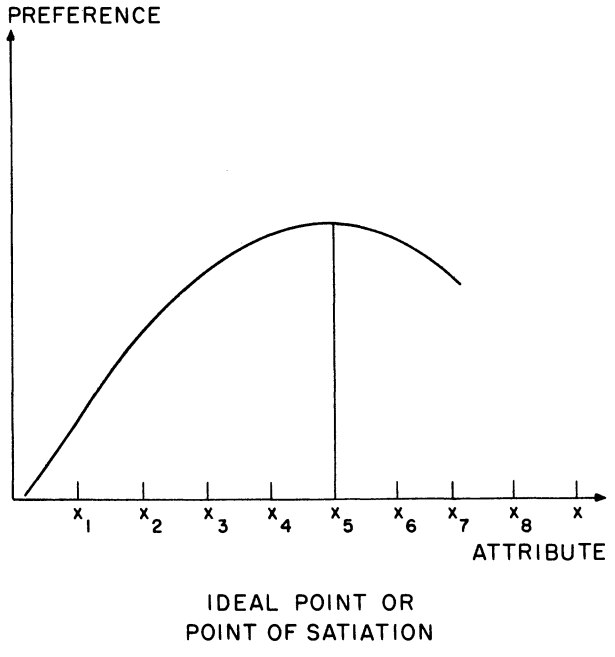
Farquhar and Rao (1976) propose that reward stems from the configuration of one's total collection of objects or behaviors. Their "balance" model for evaluating collections of items allows an item's attributes to have two types of influence on preference for the collection. The first is a simple linear increase or decrease (depending on whether the attribute is "desirable" or "undesirable"). The second relates to the diversity of values for that attribute in that collection. If diversity increases preference for the collection, the attribute is termed "counterbalancing." If diversity detracts, the attribute is termed "equibalancing." The terms in their model involving "counterbalancing" attributes could be construed as reflecting the stimulation (e.g., novelty, diversity, complexity) of the collection. Yet Farquhar and Rao posit a linear relationship between this term and preference for the collection. Such linearity is not consistent with the existence of an ideal level for stimulation. Rosenfeld (1981) developed a dynamic version of the balance model for evaluating potential additions to the collection.

Alternation among familiar alternatives might also result

[6]The term "new product" is an ambiguous one. Robertson (1971) offers four possible definitions: (1) newness from existing products (i.e., innovation), (2) newness in time (e.g., within the first six months of introduction of the product), (3) newness in terms of sales penetration levels (e.g., having achieved less than 10 percent of total potential sales), and (4) consumer newness to the product. We use this fourth meaning: a "new product" is relatively unfamiliar to the individual in question.

FIGURE B

SINGLE PEAKED PREFERENCE FUNCTION



from satiation. Coombs and Avrunin (1977) cite evidence from physiological psychology in which single peaked preference functions have characterized individuals' reactions to the constituent attributes of stimuli. A single peaked function, like that in Figure B, reflects decreasing—but positive—marginal value for incremental units of an attribute until the ideal point (or point of satiation), x_5, is reached. The marginal value of additional units of the attribute becomes negative and continues to decrease as the total store of that attribute exceeds x_5. Presumably, one would change one's behavior to begin acquiring some other attribute as one's store of x approached x_5.

Similarly, economists intimate that any change from one behavior to another is attributable to the decreasing marginal value of the original behavior, if prices and incomes are held constant (Silberberg 1978, p. 222). Following Lancaster (1971), the change could be attributed to the decreasing marginal value of the component attributes resulting from the original behavior.

An important implication of satiation is that the value of a behavior to an individual must be determined relative to her existing stores or "inventories" of attributes.[7] Green, Wind, and Jain (1972) and Green and Devita (1974, 1975) developed models of preference for item collections based on the premise that there was some interaction among the items in the collection. McAlister (1979) proposed a model of attribute satiation to account for that interaction. Her model evaluates the selection of a collection at a point in time and holds that one would be unlikely to select multiple replicates of the same item. This results from the likely satiation with attributes in which a particular item is rich and from the relative attractiveness of other items with attributes that are only meagerly provided by the first item.

Jeuland (1978) proposed a model to account for varied behavior over time. He posits that preference for a behavior at time T is a function not only of the attributes resulting from the behavior, but also of one's "experience" with the behavior.[8] Moreover, "variety seeking" (decreasing marginal value) dictates that preference for a behavior decline as one accumulates "experience" with it. However, "experience" fades if one goes for some time without enacting that behavior. Therefore, preference for the behavior can recover. Hagerty (1980) notes that Jeuland's model implies that relative preferences among unchosen behaviors do not change over time. Hagerty demonstrates that the consumption of a product can lower preferences for similar products in an experimental setting.

McAlister's (1982) dynamic attribute satiation model is similar to Jeuland's (1978). She postulates, however, that accumulated inventories of attributes resulting from behaviors—rather than accumulated experience with behaviors themselves—dictate the selection of different behaviors over time. This difference speaks to the issue raised by Hagerty (1980). Similar behaviors have similar values on relevant attributes, by definition. Thus enacting one such behavior should have approximately the same impact on attribute inventories as enacting a similar behavior. Preference for the similar (but not enacted) behavior will be reduced almost as much as it would have been had that behavior itself been performed.[9]

The difference between McAlister's (1979) attribute satiation model and her dynamic attribute satiation model (McAlister 1982) involves timing. The attribute satiation model posits concurrent acquisition/enaction of behaviors. The dynamic attribute satiation model accomodates behaviors in successive periods. The dynamic model summarizes a consumption history by the inventories of attributes generated by that history. In the absence of consumption, these inventories dwindle over time. Their diminution corresponds to physiological processing and disposal of attri-

[7]Consider Figure B. A product offering 2 units of attribute X will be much more attractive when one has only x_1 units than when one has x_7 units.

[8]Jeuland operationalizes "experience with a behavior" as a quantity that diminishes exponentially over time. Each time the behavior is performed, "experience" with that behavior receives a positive increment of one unit.

[9]The relative reduction in preference for behavior 1 when behavior 2 is performed will be a direct function of the similarity of the attributes provided by the two behaviors. If they are virtually identical, enacting behavior 2 will cause a decrement in preference for behavior 1 equivalent to the decrement that would result from the performance of behavior 1 itself. If the behaviors are only somewhat similar, the effect should be more moderate. The decrement due to their similarity will be counterbalanced by an increment in preference related to those characteristics on which they differ.

butes such as sugar content or nutritional value, or to the "forgetting" of nonphysiologically based attributes (Little and Lodish 1969). At any given point in time, preferences among behaviors are determined relative to current inventory levels. Differing inventory configurations at different points in time, combined with the impact of attribute satiation, yield an explanation for alternation among familiar alternatives.

Psychologists and consumer behaviorists have also linked varied behavior to the *acquisition of information*. Hirschman (1980) focuses on the search for new and potentially discrepant information in her study of innovativeness, novelty, and consumer creativity. As an aside, she hypothesizes that motives for varying choices among known stimuli do not concern information needs. Keon suggests just the opposite, proposing that "as a consumer continues to purchase a particular brand, confusion arises as to the true worth of the brands not purchased" (Keon 1980, pp. 1126–1127; see also Pessemier 1978). According to Keon's theory, consumers switch brands to refresh their memories about brands not recently purchased.

The study by Raju (1980) suggests that the motive for seeking information may vary with the level of the stimulation ideal. Individuals with high stimulation ideals may seek information because of a genuine desire to explore something unfamiliar, while individuals with low stimulation ideals may seek information to reduce the risk of trying an unfamiliar product.

Interpersonal Motives. A final motive for varied behavior is the desire for group affiliation or individual identity. Fromkin (1976) points out that social pressures for conformity create the need to express individuality in subtle ways. One acceptable manifestation of uniqueness is the possession of commodities that are scarce or that are unavailable to others. This would account for the varied behavior stimulated by fashion, which has the economic function of creating scarcity, according to Robinson (1961). The obvious link between the desire for social distinctiveness and a tendency to buy "new products" was affirmed in a dissertation by Szybillo (1973). Fromkin (1976) suggests that innovators are expressing the desire to see themselves as different from their peers in a socially acceptable way. We might expect, then, that desire for social distinctiveness would tend to raise one's ideal level of stimulation.

Varied behavior may also be motivated by the desire to follow the changing behavior of peers. Here the need for affiliation will lead to imitation. Most of the literature on social class and on fashion behavior has emphasized the importance of "keeping up with the Joneses." The work of Veblen (1899) and Robinson (1961) is illustrative.

A HIERARCHY OF VARIETY MODELS

The inexplicable element and the largely exogenous *derived* elements *(multiple needs* and *change in the choice problem)* are not incorporated in the models to be proposed. They represent the operational context or environment for the *explicable, direct* elements and are not related to an attribute structure. All of the models described here are dynamic. They are conditioned on an individual's past choice history. These models can accommodate changes in the set of choice objects, changes in the preferred levels and saliences of attributes, and changes in an individual's attitudes toward choice objects and toward her peers.

At the most general level, we have considered a model that might contain four separate components:

- The effects of each choice object's determinant attributes in relation to the desired and current levels of those attributes
- The object's (interpersonal) contribution to affiliation and distinctiveness
- The object's contribution to intrapersonal stimulation
- The object's contribution to intrapersonal information

If the information and stimulation aspects of intrapersonal variety are consolidated, one obtains the basic three-element model described by Pessemier (1981). The desire for affiliation and distinctiveness can be viewed as a determinant of the ideal levels of attributes, thus reducing the model to two terms. The latter approach is in the spirit of the work by Jeuland (1978), Givon (1981), and McAlister (1982).

We propose here a parsimonious model of variety seeking in which the information and the affiliation/distinctiveness terms are incorporated in the satiation and stimulation terms. We view information as a contributor to stimulation. The desire for affiliation/distinctiveness can be viewed as influencing some attributes' ideal points ($\hat{X}$'s). The stronger the affiliation motive, the more nearly an individual's ideal points will match those of her peer group.

We therefore posit a model of preference that incorporates satiation and stimulation. The model's evaluations are necessarily conditioned on historical consumption. To reach "satiation" with an attribute, it is not uncommon to have to accumulate an inventory of that attribute over time. Moreover, an entity's "stimulation" can only be evaluated relative to some collection.

Following McAlister (1982), we summarize an individual's consumption history by the attribute inventories it generates. Yet such inventories do not speak to the construct of stimulation. Pessemier (1981) has suggested that the "variety" in a set of objects might be estimated by summing all the pairwise Euclidean distances between the objects along orthogonal attribute dimensions. If we discount those pairwise Euclidean distances to reflect the time span between the two consumptions, we should have an estimate of the accumulated stimulation.

Preference for behavior k at time T is evaluated relative to the accumulated attribute inventories and the accumulated "inventory of stimulation." Equation 1 gives such an expression:

$$P_{Tk} = \underbrace{\sum_{j=1}^{J} w_j \left[(I_{Tj} + X_{kj}) - \hat{X}_j\right]^2}_{\text{A}} + \underbrace{w_{J+1} \left[D_{Tk} - \hat{X}_{J+1}\right]^2}_{\text{B}} \quad (1)$$

where

P_{Tk} = preference for behavior k at time T

J = number of relevant attributes (not including "stimulation")

w_j = importance weight for attribute j, $j = 1, 2, \ldots, J$

w_{J+1} = importance of stimulation

I_{Tj} = inventory of attribute j at time T, $j = 1, 2, \ldots, J$

X_{kj} = amount of attribute j provided by behavior k, $j = 1, 2, \ldots, J$

D_{Tk} = total stimulation that will result from enacting behavior k at time T

$\hat{X}_j$ = ideal point for attribute j, $j = 1, 2, \ldots, J$

$\hat{X}_{J+1}$ = ideal point for stimulation

In Equation 1, term A represents the "satiation" contribution to preference and term B represents the "stimulation" contribution to preference. More specifically, term A is the weighted sum of the "satiation" contributions to preference of each of the J relevant attributes. The "satiation" contribution from a particular attribute j is determined by the relationship between the ideal level for the attribute ($\hat{X}_j$) and the total amount of that attribute that will result from enacting behavior k ($I_{Tj} + X_{kj}$). The proposed quadratic relationship results in a single peaked curve, as depicted in Figure B.

The inventory term, I_{Tj}, summarizes the history of selections. Following McAlister (1982), this inventory could be calculated as:

$$I_{Tj} = \sum_{t=1}^{T} \lambda_j^{T-t} X_{k_t j} \tag{2}$$

where

I_{Tj} = inventory of attribute j at time T

λ_j = inventory retention factor for attribute j, $0 \leq \lambda_j \leq 1$; $j = 1, 2, \ldots, J$

k_t = behavior performed at time t

$X_{k_t j}$ = amount of attribute j resulting from behavior k_t

This functional form for the inventory term has the effect of discounting attributes acquired in the past. The amount of attribute j acquired today is counted at its full value. The amount of attribute j acquired yesterday counts only for λ_j times its value (recall, $0 \leq \lambda_j \leq 1$). The amount of attribute j acquired two days ago is discounted by λ_j^2. The amount of attribute j acquired 10 days ago is discounted by λ_j^{10}, and so on.

In term B of Equation 1, w_{J+1} reflects the importance of the "stimulation" contribution to preference relative to the "satiation" contribution. Again, a quadratic relationship (as in Figure B) is proposed to relate the ideal level of stimulation ($\hat{X}_{J+1}$) and the amount of stimulation resulting from behavior k (D_{Tk}). The total amount of stimulation that will result from enacting behavior k at time T can be defined recursively as:

$$D_{t_0 k} = 0 \tag{3}$$

$$D_{Tk} = \underbrace{\lambda_{J+1} D_{T-1,k}}_{\text{C}} + \underbrace{\sum_{t=1}^{T} \lambda_{J+1}^{T-t} \underbrace{\left[\underbrace{\sum_{j=1}^{J} w_j \underbrace{(X_{kj} - X_{k_t j})^2}_{\text{F}}}_{\text{E}} \right]}_{\text{D}}}_{} \tag{4}$$

where

t_0 = period before time of first relevant behavior

λ_{J+1} = stimulation retention factor

This suggests that the stimulation resulting from behavior k at time T is the sum of two terms. Term C represents the carryover stimulation from the prior period. It equals the amount of stimulation from that period, discounted by λ_{J+1}.

Term D reflects the stimulation contribution of behavior k in time period T relative to the history of behaviors selected. Each behavior is represented by the amounts of the J attributes it offers. Term F is the squared difference on attribute j between object k (chosen at time T) and an object selected at some point in the past, t. These differences are squared to reflect the fact that the sign of the difference between the two behaviors should have no effect on the stimulation provided by the contrast.[10]

The squared differences are weighted by the importances of the J attributes, resulting in term E, which thus summarizes the stimulation provided by having performed both behavior k and behavior k_t. If the attribute profiles of k and k_t are very different, enacting both these behaviors provides much stimulation. The more similar the two profiles, the less stimulation provided.

In calculating the stimulation provided by enacting behavior k at time T, the last step is to weight the contrasts among behaviors by their distance in time. Multiplying term E by λ_{J+1}^{T-t} accomplishes this weighting. Enacting very different behaviors at times T and $T - 1$ will provide much more stimulation than enacting those behaviors at times T and $T - 10$. This is reflected in Equation 4 by discounting term E by λ_{J+1} in the first case, and by λ_{J+1}^{10} in the second case.

This model has the advantage of parsimony. On the other hand, the descriptive and predictive power of the more elaborate representations may be worth the added cost of model complexity and data collection. Unless the purpose of the modeling effort and the resources available are well defined, few definitive conclusions can be drawn from among the approaches outlined above. More can be said, however, about some of the model parameters.

[10]One could as easily suggest that the absolute value of the difference be taken. That algebraic operator would have the advantage of suggesting that the impact of differences grows linearly rather than quadratically. However, since we have no data to suggest that one form more accurately reflects reality than the other, and since many estimation procedures deal more efficiently with quadratic than with absolute value relationships, we leave the quadratic.

DETERMINANTS OF PARAMETERS

Importance Weights

Importance weights reflect the relative impact of the various factors contributing to preference. The relationships between demographic characteristics and importance weights have been studied in many disciplines with respect to preferences for a diversity of products, services, and ideas. Unique to the proposed model, though, is the ability to compare the relative importance of "satiation" and "stimulation" in determining preferences. Montgomery (1953) has suggested that the drive for exploration is secondary to drives pertaining to basic needs. This can be interpreted as suggesting that the satiation component is more powerful than the stimulation component in determining preferences.

Inventory Retention Factors

The λ's reflect the rate at which the inventories of various quantities dwindle. Recall that Jeuland (1978) hypothesized that the inventory of "experience" with a product will decay over time. McAlister (1982) proposed that attribute-*specific inventories are accumulated through consumption* and are gradually dissipated over time. Since choice alternatives are evaluated relative to these inventories, preference orderings can change when the inventories change. Hence, an understanding of the determinants of the λ_j's would be very useful. Unfortunately, little work has been done on this topic. Jeuland selected an arbitrary value for this parameter and ran a simulation to gain insight into the overall process. McAlister assumed a constant parameter value (across attributes and across subjects) and estimated other model parameters using real subject preferences. Noting that such an assumption is probably unrealistic, she comments that (p. 147):

> [The] inventory of "sweetness" might be analogous to blood sugar level. The inventory retention factor would be, in that case, a function of the body's ability to metabolize sugar. Inventory retention factors for nonphysiologically based attributes like "popularity with others" or "stylishness" might be a function of self-confidence, innovativeness or similar psychological constructs.

Ideal Points

Driver and Streufert (1964) describe the feedback mechanism that is central to the ideal point for stimulation in terms of cognitive activity. They suggest that departures from the ideal level instigate cognitive activation which persists until the input matches the ideal level. This is usually brought about through change of the input (e.g., consumption). However, if the input remains at a level different than the ideal level, the ideal level itself will eventually change (Helson 1959). Zuckerman (1979) proposes that these ideal levels correspond to nervous system threshold limits.

There is agreement between psychologists (Driver and Streufert 1964) and economists (Stigler and Becker 1977) that ideal points should tend to stabilize with age. Driver and Streufert argue that ideal points are subject to radical shifts in one's early years, as the environment varies. Over time, an averaging process based on cumulative experience would make the ideal point less vulnerable to environmental swings. Stigler and Becker (1977, p. 83) argue that young people's greater susceptibility to change relative to older persons can be explained by the latter's store of "human capital".

> To change their behavior drastically, older persons have to either disinvest their capital that was attuned to the old environment or invest in capital attuned to the new environment. Their incentive to do so is weak, however, because relatively few years remain for them to collect the returns on new investments.

Psychologists attribute the growing stability of ideal points to accumulated experience. Economists, while acknowledging accumulated experience, attribute increased stability of ideal points to future consumption opportunities.

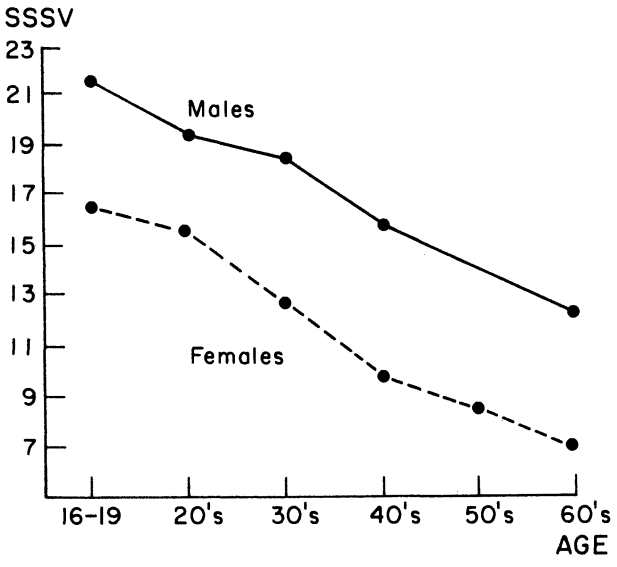
Stimulation Ideal Points

While the research just reported discusses ideal points in general, another body of literature is specifically concerned with the ideal point for stimulation. Zuckerman's (1979) Sensation Seeking Scale (SSS, mentioned earlier), which essentially measures the level of the stimulation ideal, has been administered in many different settings to people of all ages and from all walks of life. Aggregated results of those studies, depicted in Figures C and D, suggest that the ideal level of stimulation is, on average, lower for women than men and tends to decrease with age for both sexes. These findings also hold for the four component factors of the SSS, except that there does not appear to be a difference between male and female levels of Experience Seeking. Zuckerman believes there are genetic influences for the sensation seeking trait. This is consistent with Berlyne's (1960) suggestion that there is a hereditary component to the stimulation ideal. However, Zuckerman states that the sex differences on the SSS are probably influenced by social factors. He buttresses this point with a study by Bone, Montgomery, and McAllister (1973), which found higher SSS scores for first-borns and only children than for later-borns. Zuckerman intimates that abundant early stimulation creates future sensation seekers. Animal studies have demonstrated that the intensity and variability of ambient stimulation in early life will affect preference for intense and varied stimuli later in life (Fiske and Maddi 1961; DeNelsky and Denenberg 1967; Gorry, Chibucos, and Bell 1971). That is, exposure of one sense to variability tends to develop preference for variability in stimulation of the other senses.

One implication of this finding might be that those individuals who have high (low) stimulation ideal points for one product class would be likely to have high (low) stimulation ideals for all product classes. Robertson (1971) in-

FIGURE C

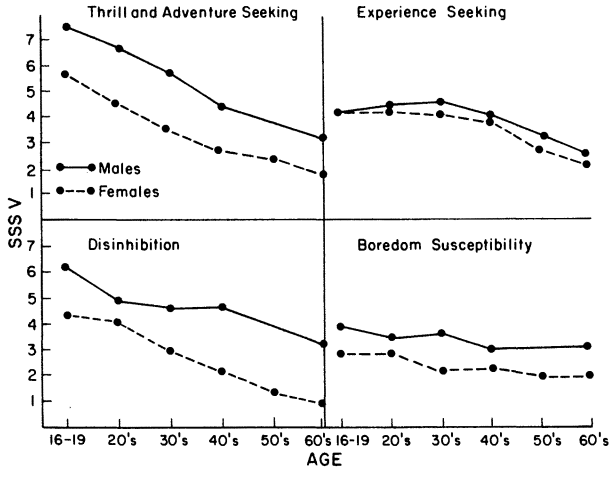
CHANGES IN SENSATION-SEEKING, TOTAL SCORES AS A FUNCTION OF AGE



NOTE: SSSV = Sensation Seeking Scale, Form V. Reprinted by permission from Zuckerman, Marvin, et al. (1978), "Sensation Seeking in England and America: Cross-Cultural, Age, and Sex Comparisons," *Journal of Consulting and Clinical Psychology*, 46, 139–149, © 1978 by the American Psychological Association.

FIGURE D

CHANGES IN SENSATION-SEEKING SUBSCALE SCORES AS A FUNCTION OF AGE



NOTE: SSSV = Sensation Seeking Scale, Form V. Reprinted by permission from Zuckerman, Marvin, et al. (1978), "Sensation Seeking in England and America: Cross-cultural, Age, and Sex Comparisons," *Journal of Consulting and Clinical Psychology*, 46, 139–149, © 1978 by the American Psychological Association.

dicates that this is not the case. There is no consistency among related categories. King (1964) suggests that innovators are active in product contexts consistent with the "psycho-social makeup." This view is consistent with Driver and Streufer's (1964) conjecture that the stimulation ideal may vary systematically with the centrality of the plans or concepts involved.

We conjecture that an individual will display preference for similar levels of stimulation in product classes that are important to her. The level of stimulation preferred should be related to the level of stimulation she experienced early in life.

Experiences later in life can also impact the optimal stimulation level. It is clear from adult novelty preference data (Barron 1953a, 1953b) that learning can produce differences in these ideal points. Dember and Earl (1957) explain this by hypothesizing a "pacer" level of stimulation just higher than the ideal. When experienced, the pacer becomes the ideal. Consistent with but extending this notion, Driver and Streufert (1964) postulate that small deviations from the optimal level of stimulation tend to increase (for upward deviations) or decrease (for downward deviations) the stimulation ideal. Finally, Stigler and Becker's (1977) argument that older persons have little incentive to invest in "human capital" attuned to a new environment could be interpreted as suggesting that stimulation ideals will diminish with age.

In addition to the developmental effects of stimulation ideals, one's current environment can also have an impact. Zuckerman (1979) suggests that since an individual's internal stimulation is greater in the mornings than in the evenings, the level of stimulation she seeks from her environment is lower in the morning than in the evening. Schneider and Fromkin (1980) can be interpreted as linking the desire for social distinctiveness and the level of the stimulation ideal. In earlier work, Fromkin (1968) linked high self-perceived similarity to preference for scarce (relative to plentiful) experiences, and low self-perceived similarity to lack of preference for scarce (relative to plentiful) experiences. From this it can be hypothesized that, certeris paribus, individuals in more homogenous environments will tend to seek more stimulation.

Empirical studies of related phenomena (e.g., consumer innovativeness, variety seeking behavior) provide data consistent with the foregoing hypotheses and suggest further insights.

Robertson's (1971) summary of 21 studies on consumer innovativeness consistently found innovativeness positively correlated with income, education, occupational status, social participation, opinion leadership, venturesomeness, and print readership. Age was negatively correlated with innovativeness.[11] Number of children and whether or not the individual watched television were consistently uncorrelated with innovativeness. Similarly, Givon's (1981) analysis of the varied behavior in the *Chicago Tribune* 1958–1966, 1968, and MRCA 1962–1966 panels indicates that households with a wife under the age of 35 and households with higher per capita income were likely to seek more variety than others.

Raju (1980 p. 280) found that individuals with high stimulation ideals:

[11]Here we presume that level of innovativeness is in a one-to-one relationship with the level of the ideal for stimulation.

> feel less threatened by ambiguous stimuli and are more likely to respond than withdraw from such stimuli. Also, they are less rigid in their response patterns. However, there seem to be no differences [between individuals with high and low stimulation ideals] in openmindedness or tendency to *perceptually categorize stimuli . . . . results suggest that stimulation needs are satisfied most by risk taking*, followed by variety seeking and curiosity, in that order.

In summarizing the implications of correlating the SSS with other personality measurements, Zuckerman (1979, pp. 181–182) reports that:

> . . . high-sensation seekers are egocentrically extraverted; that is, they are concerned with other as an audience or a source of stimulation, rather than in a dependent or nurturant sense. Sensation seekers maintain their autonomy through assertive relationships with others rather than through isolation. Sensation seekers are nonconformists and risk takers. They are somewhat asocial in the sense that they are ruled by their own needs rather than social conventions or the needs and attitudes of others. They are attracted toward a lifestyle that maximizes the opportunity for independence and hedonistic self-fulfillment with like-minded persons. . .
>
> Sensation seeking is related to an open, receptive attitude toward experience and the ability to tolerate sensations and ideas that are unusual, strange, or primitive.

SUMMARY

We have classified the literature on varied behavior either as considering varied behavior to be inexplicable or as attempting to explain it. The development of the stochastic models of the "inexplicable" school has been outlined. As explanatory variables have been incorporated into these models over time, the differences between the "explicable" and "inexplicable" schools have become obscured.

The literature focusing on explanation has also been dichotomized. One research stream views varied behavior as an artifact of multiple needs or of changes in the choice problem; the other regards variation in behavior as inherently rewarding. Inherent rewards have been hypothesized to be both intrapersonal and interpersonal, and an idiosyncratic optimal level of stimulation has been proposed as representing the ideal level of varied behavior. We believe the ideal level of stimulation has both hereditary and environmental determinants. In particular, the more intense and varied the stimulation to which a child is exposed, the greater her desire for stimulation as an adult.

The longstanding controversy about the degree of irreducible stochasticity in consumer behavior might be resolved by taking a more comprehensive view of the causes of variability. The literature suggests a broad range of interesting hypotheses. We hope this paper will encourage other investigators both to build and to test more comprehensive, dynamic models of choice behavior.

[*Received December 1981. Revised June 1982.*]

REFERENCES

Barron, F. (1953a), "Complexity-Simplicity as a Personality Dimension," *Journal of Abnormal and Social Psychology,* 48, 163–172.

——— (1953b), "Some Personality Correlates of Independence of Judgment," *Journal of Personality,* 21, 287–297.

Bass, Frank M. (1974), "The Theory of Stochastic Preference and Brand Switching," *Journal of Marketing Research,* 11 (February), 1–20.

——— Abel Jeuland, and Gordon P. Wright (1980), "A Multibrand Stochastic Model Compounding Heterogeneous Erlang Timing and Multinomial Choice Processes," *Operations Research,* 28 (March-April), 255–277.

——— and Thomas L. Pilon (1979), "A Stochastic Brand Choice Framework for Econometric Modelling of Time Series Market Share Behavior," Working Paper 668, Krannert Graduate School of Management, Purdue University, West Lafayette, IN.

Belk, Russell W. (1979), "A Free Response Approach to Developing Product-Specific Consumption Situation Taxonomies," in *Analytical Approaches to Product and Marketing Planning,* ed. Allan D. Shocker, Cambridge, MA: Marketing Science Institute, 177–196.

Berlyne, D. C. (1960), *Conflict, Arousal and Curiosity,* New York: McGraw-Hill.

——— (1963), "The Motivational Significance of Collative Variables and Conflict," in *Theories of Cognitive Consistency,* eds. Robert P. Abelson et al., Chicago: Rand McNally, 257–266.

Bettman, James R. (1979), *An Information Processing Theory of Consumer Choice,* Reading, MA: Addison-Wesley.

Blin, Jean-Marie and Joe A. Dodson (1980), "The Relationship Between Attributes, Brand Preference, and Choice: A Stochastic View," *Management Science,* 26 (June), 606–619.

Bone, R. N., D. D. Montgomery, and D. S. McAllister (1973), "The Relationship Between Sensation Seeking, Sex, Family Size and Birth Order," unpublished manuscript.

Bradley, Ralph and Milton Terry (1952), "Rank Analysis of Incomplete Block Designs. I: The Method of Paired Comparisons," *Biometrica,* 39, 324–345.

Brickman, Philip and Barbara D'Amato (1975), "Exposure Effects in a Free-Choice Situation," *Journal of Personality and Social Psychology,* 32(3), 415–420.

Coombs, Clyde and George S. Avrunin (1977), "Single Peaked Preference Functions and Theory of Preference," *Psychological Review,* 84(2), 216–230.

Dember, William N. and Robert W. Earl (1957), "Analysis of Exploratory, Manipulating and Curiosity Behaviors," *Psychological Review,* 64(2), 91–96.

DeNelsky, Garland Y. and Victor H. Denenberg (1967), "Infantile Stimulation and Adult Exploratory Behavior in the Rat: Effects of Handling Upon Visual Variation Seeking," *Animal Behavior,* 15, 568–573.

Driver, Michael J. and Siegfried Streufert (1964) "The 'General Incongruity Adaptation Level' (GIAL) Hypothesis: An Analysis and Integration of Cognitive Approaches to Motivation," Paper No. 114, Institute for Research in the Behavioral, Economic and Management Sciences, Krannert Graduate School of Management, Purdue University, West Lafayette, IN.

Faison, Edmund W. J. (1977), "The Neglected Variety Drive," *Journal of Consumer Research,* 4 (December), 172–175.

Farquhar, Peter H. and Vithala R. Rao (1976), "A Balance Model for Evaluating Subsets of Multiattributed Items," *Management Science,* 5 (January), 528–539.

Fiske, D. W. and Salvatore Maddi, eds. (1961), *Functions of Varied Experience,* Homewood, IL: Dorsey Press.

Fromkin, H. L. (1968), "Affective and Valuational Consequences of Self-Perceived Uniqueness Deprivation," unpublished Ph.D. dissertation, The Ohio State University, Columbus, OH.

——— (1976), "The Search for Uniqueness and Valuation of Scarcity: Neglected Dimensions of Value in Exchange Theory," Paper No. 558, Institute for Research in the Behavioral, Economic and Management Sciences, Krannert Graduate School of Management, Purdue University, West Lafayette, IN.

Givon, Moshe U. (1981), "Variety Seeking Through Brand Switching," Institute Paper No. 764, Krannert Graduate School of Management, Purdue University, West Lafayette, IN.

Gorry, Thomas H., Thomas R. Chibucos, and Robert W. Bell (1971), "Visual and Tactual Variation Seeking in the Rat: Intermodal Effects of Early Rearing," *Developmental Psychobiology,* 4(2), 123–132.

Green, Paul E., Yoram Wind, and Arun K. Jain (1972), "Preference Measurement of Item Collections," *Journal of Marketing Research,* 9 (February), 371–377.

——— and Michael T. Devita (1974), "A Complementarity Model of Consumer Utility for Collections of Items," *Journal of Consumer Research,* 1 (September), 56–67.

——— and Michael T. Devita (1975), "An Interaction Model of Consumer Utility," *Journal of Consumer Research,* 2 (September), 146–153.

Gullikson, H. (1953), "A Generalization of Thurstone's Learning Function," *Psychometrica,* 18, 297–307.

Hagerty, Michael R. (1980), "The Situational Model: A Theory of Choice," unpublished Ph.D. dissertation, The University of Illinois.

Heider, F. (1946), "Attitudes and Cognitive Organization," *Journal of Psychology,* 21, 107–112.

Hauser, John R. and Patricia Simmie (1981), "Profit Maximizing Perceptual Positions," *Management Science,* 27 (January), 33–56.

Helson, H. (1959), "Adaptation Level Theory," in *Psychology: A Study of a Science, Volume 1: Sensory Perceptual and Physiological Formulations,* ed. S. Kich, New York: McGraw-Hill, 565–621.

Hirschman, Elizabeth C. (1980), "Innovativeness, Novelty Seeking, and Consumer Creativity," *Journal of Consumer Research,* 7 (December), 283–295.

Holbrook, Morris B. (1981), "Situation Specific Ideal Points and Usage of Multiple Dissimilar Brands," working paper, Columbia University, New York.

Horsky, Dan and Subrata K. Sen (1982), "Models of Choice:' Perspectives from Psychology, Economics and Marketing," in *Choice Models in Consumer Behavior,* ed. Leigh McAlister, Greenwich, CT: JAI Press.

Howard, John A. and Jagdish N. Sheth (1969), *The Theory of Buyer Behavior,* New York: John Wiley.

Huber, Joel and David J. Reibstein (1978), "Attitude Measures and Choice Frequency: Some Pitfalls to be Avoided," in *Attitude Research Plays for High Stakes,* ed. John C. Maloney, Chicago: American Marketing Association.

Jeuland, Abel P. (1978), "Brand Preference Over Time: A Partially Deterministic Operationalization of the Notion of Variety Seeking," in *AMA Research Frontiers in Marketing, Dialogues and Directions,* ed. Subashi Jain, Educators' Proceedings, Series #43, 33–37.

Kelly, G. A. (1955) *The Psychology of Personal Constructs, Volume 1: A Theory of Personality.* New York: W. W. Norton.

Keon, John W. (1980), "The Bargain Value Model and a Comparison of Managerial Implications with the Linear Learning Model," *Management Science,* 26, (November) 1117–1130.

Keuhn, Alfred (1962), "Consumer Brand Choice—A Learning Process?" *Journal of Advertising Research,* 1(2), 10–17.

King, Charles W. (1964), "A Study of the Innovator and the Influential in the Fashion Adoption Process," unpublished Ph.D. dissertation, Graduate School of Business Administration, Harvard University, Cambridge, MA.

Lancaster, Kelvin (1971), *Consumer Demand: A New Approach,* New York: Columbia University Press.

Laurent, Gilles (1978), "A Study of Multiple Variant Consumption for Frequently Purchased Consumer Products," unpublished Ph.D. dissertation, Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA.

Little, John D. C. and Leonard M. Lodish (1969), "A Media Planning Calculus," *Operations Research,* 17 (January-February), 1–35.

Luce, R. Duncan (1959), *Individual Choice Behavior: A Theoretical Analysis,* New York: John Wiley.

Maddi, Salvatore R. (1968), "The Pursuit of Consistency and Variety," in *Theories of Cognitive Consistency: A Sourcebook,* eds. Robert P. Abelson et al., Chicago: Rand McNally.

Massy, William F., David B. Montgomery, and Donald G. Morrison (1970), *Stochastic Models of Buyer Behavior,* Cambridge, MA: MIT Press.

McAlister, Leigh (1979), "Choosing Multiple Items from a Product Class," *Journal of Consumer Research,* 6 (December), 213–224.

——— (1982), "A Dynamic Attribute Satiation Model of Variety Seeking Behavior," *Journal of Consumer Research,* 9 (September), 141–150.

McConnell, J. Douglas (1968), "The Development of Brand Loyalty," Journal of Marketing Research, 5 (February), 13–19.

Mehrabian, Albert and James A. Russell (1974), *An Approach to Environmental Psychology,* Cambridge, MA: MIT Press.

Montgomery, K. C. (1953), "The Effect of Hunger and Thirst Drives Upon Exploratory Behavior," *Journal of Comparative and Physiological Psychology,* 46, 315–319.

Muller, Eitan (1979), "Consumer Purchasing Behavior and Market Segments," working paper, The Hebrew University.

Pessemier, Edgar A. (1978), "Stochastic Properties of Changing Preferences," *The American Economic Review,* 68(2), 380–385.

——— (1981), "Varied Consumer Behavior: Some Theory and Measurement Methods," working paper, Krannert Graduate School of Management, Purdue University, West Lafayette, IN.

Raju, P. S. (1980), "Optimum Stimulation Level: Its Relationship to Personality, Demographics and Exploratory Behavior," *Journal of Consumer Research,* 7 (December), 272–282.

Robertson, Thomas S. (1971), *Innovative Behavior and Communication,* New York: Holt, Rinehart & Winston.

Robinson, Dwight E. (1961), "The Economics of Fashion Demand," *Quarterly Journal of Economics,* 378–396.

Rosenfeld, Irene (1981), "A Conditional Vector Model of Subset Evaluation: Development and Empirical Test," unpublished Ph.D. dissertation, School of Business and Public Administration, Cornell University, Ithaca, NY.

Schneider, C. R. and Howard L. Fromkin (1980), *Uniqueness: The Human Pursuit of Difference*, New York: Pleunum Press.

Silberberg, Eugene (1978), *The Structure of Economics*, New York: McGraw-Hill.

Srivastava, Rajendra K., Allan D. Shocker, and George S. Day (1978), "An Exploratory Study of the Influences of Usage-Situation on Perceptions of Product Markets, in *Advances in Consumer Research*, Vol. 5, ed. H. Keith Hunt, Chicago: Association for Consumer Research, 32–37.

Stefflre, Volney J. (1979), "New Products: Organizational and Technical Problems and Opportunities," in *Analytical Approaches to Product and Marketing Planning*, ed. Allan D. Shocker, Cambridge, MA: Marketing Science Institute, 415–480.

Stigler, George J. and Gary S. Becker (1977), "De Gustibus Non Est Disputandum," *American Economic Review*, 67 (March), 76–90.

Szybillo, G. J. (1973), "The Effects of Price and Scarcity on the Valuation of Fashions by Fashion Opinion Leaders and Non-opinion Leaders," unpublished Ph.D. dissertation, Purdue University, West Lafayette, IN.

Thurstone, L. L. (1930), "The Learning Function," *Journal of General Psychology*, 3, 469–493.

Tucker, W. T. (1964), "The Development of Brand Loyalty," Journal of Marketing Research, (August), 32–35.

Veblen, Thorstein (1899), *The Theory of the Leisure Classes*, New York: Penguin Books, 1979.

Venkatesan, M. (1973), "Cognitive Consistency and Novelty Seeking," in *Consumer Behavior: Theoretical Sources*, eds. Scott Ward and Thomas S. Robertson, Englewood Cliffs, NJ: Prentice-Hall, 355–384.

Zuckerman, Marvin (1979), *Sensation Seeking; Beyond the Optimal Level of Arousal*, Hillsdale, NJ: Lawrence Erlbaum.

———S. Eysenck, and H. J. Eysenck (1978), "Sensation Seeking in England and America: Cross-cultural, Age, and Sex Comparisons," *Journal of Consulting and Clinical Psychology*, 46, 139–149.